

Amendment & Reconsideration
Serial No. 10/658,639

Docket 5000-1-433

REMARKS

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Entry of this Amendment and reconsideration are respectfully requested in view
of the amendments to the claims and the remarks herein.

Claims 1-6, and 9-19 are pending and stand rejected.

Claims 1, 9 and 15 have been amended. Claim 5 has been cancelled.

Claim 1-6 stand rejected under 35 USC §112, first paragraph as allegedly
containing subject matter not disclosed in the written description.

Applicant respectfully disagrees with and explicitly traverses the rejection of the
claims. However, independent claim 1 has been amended to recite a phase modulator for
receiving an output of a T-flip-flop and an interferometer for receiving the outputs of the
phase modulator to create an output signal. No new matter has been added. Support for
the amendment may be found in at least cancelled claim 5.

For the amendment made to claim 1, applicant submits that the rejection of the
claims has been overcome and respectfully requests that the rejection be withdrawn.

Claims 1-6 and 9-19 stand rejected under 35 USC §103(a) as being unpatentable
by Ono, et al (USP no. 6,388,786) in view of Kitajima et al (USP no. 5,515,196), Wei
(USP no. and Kaiser et al (Kaiser et al., "Reduced Complexity Optical Duobinary 10
Gb/s Transmitter Setup Resulting in an Increased Transmission Distance," IEEE
Photonics Technology Letters, Vol. 13, No. 8, August 2001, page 884-886).

The Examiner has maintained the rejected the claims as being obvious by

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essentially arguing that it would have been a matter of replacing the D-flip-flop of Ono with a T-flip-flop of Kitajima or Wei and using both outputs of the T-flip-flop as the phase output would be correlated with the T flip-flop output. The Examiner further provides a drawing of a NRZ signal, a TFF signal and the phase signal (see Figure O1, page 4, instant Office Action).

Applicant respectfully disagrees with and explicitly traverses the rejection of the claims. However, the claims have been amended to recite that the output signal has a bit rate that is comparable with that of the input NRZ signal. No new matter has been added. Support for the amendment may be found at least in Figure 5 of the instant application.

Contrary to the Examiner's position regarding the incorporation of a TFF in place of a DFF, applicant submits that the use of TFF causes the frequency or bit rate of the output signal to be half that of the input NRZ signal.

That is, the Q output of a D-flip-flop always takes on the state of the D input at the moment of a rising clock edge, delayed by one clock count. The T-flip-flop, on the other hand, is a frequency divider that divides the clock input by two. This can be shown in a series of alternating "1s" and "0s" for a input signal as:

Input 1010101...

Output 11001100110011...

Because two bits are transmitted for each one input bit, the bit rate is one-half that of the input signal, even though the time to transmit each bit is the same. Thus, the output of the T-flip-flop incorporated into Fig. 18 of Ono would cause the output signal to have a frequency or bit rate of one-half of that of the input NRZ signal.

Hence, the modified device of Ono teaches at bit rate that is one-half that of the

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input signal and fails to teach a comparable input and output bit rate, as is recited in the claims.

In order to establish a *prima facie* case of obviousness, three basic criteria must be met, 1. there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the reference teachings, 2. there must be a reasonable expectation of success; and 3. the prior art reference must teach or suggest all the claim limitations.

In this case, a *prima facie* case of obviousness has not been made as each of the elements recited in the independent claims is not disclosed by the combination of the primary references.

For the amendments made to the claims, applicant submits that the rejection of the independent claims has been overcome and respectfully requests that the rejection of the independent claims be withdrawn.

With regard to the remaining claims, these claims depend from the independent claims and, thus, are also allowable by virtue of their dependency upon an allowable base claim.

Applicant respectfully requests that the rejection of these claims be withdrawn.

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For all the foregoing reasons, it is respectfully submitted that all the present claims are patentable in view of the cited references. A Notice of Allowance is respectfully requested.

Respectfully submitted,



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